

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference PHUS030371WO	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/IB2004/051856	International filing date ( <i>day/month/year</i> ) 24 September 2004 (24.09.2004)	Priority date ( <i>day/month/year</i> ) 29 September 2003 (29.09.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant KONINKLIJKE PHILIPS ELECTRONICS, N.V.			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/> Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).

Date of issuance of this report 03 April 2006 (03.04.2006)	
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Idhir Britel
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# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

REC'D 19 JAN 2005

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To:

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

### FOR FURTHER ACTION

See paragraph 2 below

International application No.  
PCT/IB2004/051856

International filing date (day/month/year)  
24.09.2004

Priority date (day/month/year)  
29.09.2003

International Patent Classification (IPC) or both national classification and IPC  
G09G3/34

Applicant  
KONINKLIJKE PHILIPS ELECTRONICS, N.V.

#### 1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and Industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

#### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

#### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**Box No. I Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
 This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
 a sequence listing  
 table(s) related to the sequence listing
  - b. format of material:  
 in written format  
 in computer readable form
  - c. time of filing/furnishing:  
 contained in the international application as filed.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority for the purposes of search.
3.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/051856

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or  
industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-22
	No: Claims	
Inventive step (IS)	Yes: Claims	1-22
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-22
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Box No. VIII Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

1. The following documents are referred to in this communication:

D1 : ZEHNER E ET AL: "20.2: Drive Waveforms for Active Matrix Electrophoretic Displays" 2003 SID INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS. BALTIMORE, MD, MAY 20 - 22, 2003, SID INTERNATIONAL SYMPOSIUM DIGEST OF TECHNICAL PAPERS, SAN JOSE, CA : SID, US, vol. VOL. 34 / 2, 20 May 2003 (2003-05-20), pages 842-845, XP007008253

D2 : WO 03/044765 A (E INK CORP) 30 May 2003 (2003-05-30)

**Re Item VIII.**

2. The application does not meet the requirements of Article 6 PCT, because claims 1-3, 6, 7, 10, 11, 14, 15, 19, 20 and 22 are not clear.

- 2.1 Insofar as claims 1, 10, 11, 15, 19 and 20 fail to define the display as being an electrophoretic display device, the subject matter of the claims is not supported by the description as required by Article 6 PCT, as the scope of claims 1, 10, 11, 15, 19 and 20 is broader than justified by the description and drawings.

Throughout the description reference is made only to electrophoretic displays (description: page 1, line 9 to page 3, line 1; page 4, line 24 to page 5, line 12; page 7, line 25 to page 11, line 21); moreover it appears that the solution as proposed would not be applicable to, for example, liquid crystal devices wherein due to the hysteresis phenomenon the given driving sequence would apparently not cause a change of state in the pixel.

It is also noted that the concept of "shaking pulse" thoroughly referred to in the description (page 7, line 28 to page 9, line 27) is known in the art only in the context of electrophoretic display devices.

- 2.2 Also, claims 1-3, 10, 11, 15, 19 and 20 are unclear because the wording "over-reset pulse" and, "standard reset pulse" does not help understanding and precisely limiting the extent of the subject matter for which protection is sought. It is suggested to define "over-

reset pulse" and "reset pulse" as indicated in claims 8 and 9, respectively.

Also the scope of claims 6 and 7 are unclear because the wording "shaking pulse" does not help understanding and precisely limiting the extent of the subject matter for which protection is sought. It is suggested to define "shaking pulse" as indicated in the description (page 8, lines 14-16).

- 2.3 The scope of claims 14 and 22 is obscure because the wording "comprises a sign" does not help understanding and precisely limiting the extent of the subject matter for which protection is sought.
- 2.4 Claim 11 and 20 are claims of apparatus type but they have been drafted using a wording related to a method of using the apparatus rather than clearly defining the apparatus in terms of its technical features. The intended limitations are therefore not clear from this claim, contrary to the requirements of Article 6 PCT.
- 2.5 The features mentioned in claims 4, 5 and 7, that is the steps of:

"applying a compensating pulse wherein the duration of the compensating pulse is the same as the difference between the duration of the over-reset pulse and that of the reset pulse" (claim 4);

"applying a compensating pulse to the display prior to the application of a gray scale waveform" (claim 5); and

"applying a waveform to the display during the monochrome update mode, said waveform comprising shaking pulses followed by a standard reset pulse" (claim 7)

appear necessary for the implementation of the invention, because these steps allows the electrophoretic material to be brought into the final state, that is the display state according to the image that should be pictured on the screen and allow to compensate for the different required energy when switching from the monochromatic mode to the gray scale mode.

It is therefore necessary to newly draft the independent claims to include all the above mentioned features.

**Re Item V.**

3. The objections raised in sections 2 to 2.5 notwithstanding, it appears that the subject matter of claims 1, 10, 11, 15, 19 and 20, when modified following the suggestion presented in sections 2 to 2.5 above, would contain features which are not anticipated by any document of the available prior art.
- 3.1 Document D2, which is considered to represent the most relevant state of the art, discloses (the references in parenthesis applying to this document) a method for updating an image on an electrophoretic bistable display by providing compensated waveforms comprising preset pulses "shaking pulses" (D2: Fig. 9, item 304) to at least a portion of the display and a following driving pulse (D2: Fig. 9, item 306) to display a desired colour or grey scale level.

From this, the subject-matter of independent claims 1, 10, 11, 15, 19 and 20 differs in that a distinction is made between the pixel transitions in monochromatic mode and the transitions from monochromatic mode to gray scale mode wherein an initial compensation pulse (with length equal to the difference of the length of a over-reset pulse and that of a reset pulse standard pulse) is applied to the display electrodes cells.

These features solve the problem of improving the accuracy of the gray scale representation and minimising abrupt gray scale transitions when the pixel changes gray level.

These features are neither discloses nor suggested by document D1, being considered the closest prior art, nor by D2.

Subject to the solution of the problems mentioned in section 2 to 2.5 above, since the subject matter of claims 1, 10, 11, 15, 19 and 20 is apparently also not disclosed in any other available prior art, it is considered to be novel (Article 33(2) PCT).

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/IB2004/051856